

**REMARKS**

By the present amendment, the abstract has been amended.

Claim 1 has been amended to recite that the OSC function constitutes a supply of elemental oxygen O<sub>2</sub> without affecting the claim scope.

New method claims 9-16 corresponding to system claims 1-8 have been added. The present application is a national stage of a PCT application, so “unity of invention” rules apply. Accordingly, it is submitted that claims 1-16 have the same common inventive concept under PCT Rule 13 and should be examined together in this application (see MPEP 1893.03(d)).

Claims 1-16 are pending in the present application. Claims 1 and 9 are the only independent claims.

I. Objection to the abstract

In the Office Action, the abstract is objected to as including legal phraseology.

The abstract has been amended to remove legal phraseology as follows:

~~This—In a system for assisting the regeneration of depollution means (1) associated with oxidation catalyst forming means (2)~~apparatus associated with an oxidation catalyst implementing an OSC function, constituting a supply of oxygen and integrated in an exhaust line (3) of a motor vehicle diesel engine (4), in which the engine is associated with a common rail—means (7) for feeding its cylinders with fuel, is characterized in that it comprises means (8) for analyzing the running conditions (9) of the vehicle—and for comparing them are analyzed and compared with predetermined threshold values (10), to control the engine in a first regeneration mode of operation with a lean mixture (11) when running conditions are above the threshold values, or in a second regeneration operating mode implementing sequences in which engine operation alternates between stages of rich mixture operation and of lean mixture operation (12) when conditions are below the threshold values.

Accordingly, it is submitted that the objection should be withdrawn.

II. Objection to the claims

In the Office Action, claims 2, 4, and 8 are objected to for informalities. It is alleged in the Office Action that, in claims 2 and 4, “comprise” should be “comprises,” and in claim 8, “from” should be “from at least one of” and “and/or” should be “and.”

Claim 8 has been amended as suggested in the Office Action, but in claims 2 and 4, it is submitted that the verb “comprise” is plural because the subject “depollution means” is plural, so the suggestion in the Office Action would be grammatically incorrect. It is noted that claim 6 uses the verb “are” in a similar situation, to which no objection has been raised.

In view of the above, it is submitted that the objection should be withdrawn.

III. Art rejections

In the Office Action, claims 1, 2, and 7-8 are rejected under 35 U.S.C. 102(e) as anticipated by US 6,708,487 to Morimoto et al. (“Morimoto”).

Further, claims 3-4 and 6 are rejected under 35 U.S.C. 103(a) as obvious over Morimoto in view of US 20020007629 to Asanuma et al. (“Asanuma”), and claim 5 is rejected under 35 U.S.C. 103(a) as obvious over Morimoto in view of US 4,655,037 to Rao (“Rao”).

The rejections are respectfully traversed. Morimoto relates to a regeneration system that uses both catalytic oxidation with NO<sub>2</sub> at relatively low temperature of 270-350°C (Morimoto at col. 6, line 42) and combustion with O<sub>2</sub> at relatively high temperature of 500-550°C (Morimoto at col. 8, line 37). Thus, the system of Morimoto has a catalytic oxidation module upstream of the particle system. However, the oxidation catalyst of Morimoto is intended to generate an

oxidizer NO<sub>2</sub> (see col. 1, lines 23-32) for low-temperature NO<sub>2</sub> oxidation, not O<sub>2</sub> for higher temperature combustion.

More specifically, the system of Morimoto has three operation modes:

- (i) a continuous regeneration mode, with catalytic oxidation at appropriate catalytic oxidation temperature of the exhaust line (270-350°C), when injection and engine speed are in appropriate ranges (see Fig. 4 of Morimoto),
- (ii) a continuous regeneration assist mode, with catalytic oxidation, where the temperature is increased to the appropriate catalytic oxidation temperature range by regulation of the intake air and/or exhaust gas (see col. 8, lines 53-62 of Morimoto)
- (iii) a forced regeneration mode, where the temperature is increased to the higher oxygen combustion temperature range of 500-550°C (see col. 8, lines 12-23 of Morimoto), in particular by increasing injected fuel at the exhaust (see col. 8, lines 34-35 of Morimoto).

The oxidation catalyst 11 of Morimoto is designed to assist the catalytic oxidation in continuous regeneration mode (i) and continuous regeneration assist mode (ii). Thus, the catalyst 11 does not supply oxygen but NO<sub>x</sub>. Accordingly, the catalyst 11 of Morimoto does not have an OSC function.

In addition, it is submitted that the interpretation according to which the continuous regeneration area on Fig. 4 of Morimoto corresponds to a lean regeneration operation mode below injection quantity and engine speed thresholds, and that the zone elsewhere (for example, at the top right of Fig. 4) corresponds to an alternating lean/rich operation mode above these

thresholds, is inaccurate. For example, the engine of Morimoto could operate outside the continuous regeneration zone of Fig. 4 with assisted continuous regeneration using catalytic NO<sub>2</sub>, especially when the exhaust line temperature is above the threshold temperature Te.

In summary, the system of Morimoto is different from the present invention because it operates only with a NO<sub>2</sub> oxidation catalyst for low temperature oxidation of the soot, and not a catalyst having an OSC function for high temperature combustion of the soot. Further, an advantage of the system of the presently claimed invention is that the catalyst can generate O<sub>2</sub> with a view of improving the temperature level at the inlet of the particle filter, so as to promote O<sub>2</sub> combustion of the soot (see page 1, lines 5-6 and page 3, lines 18-19 of the present specification). The features of the presently claimed invention and its advantages are not taught or suggested in Morimoto or in any of the other cited references. Therefore, the present claims are not obvious over Morimoto taken alone or in any combination with the other cited references.

In conclusion, the invention as presently claimed is patentable. It is believed that the claims are in allowable condition and a notice to that effect is earnestly requested.

In the event there is, in the Examiner's opinion, any outstanding issue and such issue may be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Amendment  
US Appl. No. **10/595,824**  
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In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of the response period. Please charge the fee for such extension and any other fees which may be required to our Deposit Account No. 502759.

Respectfully submitted,

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